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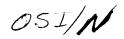
INFORMATION REPORT INFORMATION REPORT

CENTRAL INTELLIGENCE AGENCY

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	T district a flow Th	ysics of the Hungar	reports on th	e Central Research	
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TE OF			REFERENCES		25 X 1
	Central Research Budapest	Institute for Physi	REQUIREMENT NO.	RD	
NECT	Hungarian Academ	y_of Sciences:	DATE DISTR.	28 March 1957	25
UNTRY	Hungary		REPORT		
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COUNTRY	Hungary	REPORT	
SUBJECT		DATE DISTR. 28 March 1957	25 X 1
	Hungarian Academy of Sciences: Central Research Institute for Physics,	NO. PAGES 1	
	Budapest	REQUIREMENT RD	
DATE OF		REFERENCES	25X1
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<u> </u>	SOURCE EVALUATIONS ARE DEFINITIVE. APPRA	AISAL OF CONTENT IS TENTATIVE.	25X1
	1	reports on the Central Research	
	Institute for Physics of the Hungarian A. The reports contain information on the 1	cation of the Institute. its	
	departmental organization, the scientifi		25 X 1

Η	U	Ν	G	A	R	Y

Scientific/Economic

The Central Research Institute for Physics,

Hungarian Academy of Sciences,

BUDAPEST - CSILLEBERC.

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- 2. The Director of the Institute at present is Professor L. JANOSSY.
- 3. Departments of the Institute.

The Institute has the following Departments:

- a) SPECTROSCOPY (molecular, absorption, industrial)
- b) COSWIC RAYS
- o) ATOMIC PHYSICS
- d) RADIOLOGY
- e) ELECTROMAGNETIC WAVES
- f) FERROMAGNETISM
- g) ATOMIC PILE PROJECT.

(a) The SPECTROSCOPY Department is not doing much valuable work, due rartly	
to lack of modern apparatus and partly because it is directed by an analytical	25X1
chemist, who is little more than an administrator in this	20/1
Department and has little scientific interest in the work, except in its relation	25X1
to chemical analysis.	23/1

(b) The Department for COSMIC RAYS is directed by JANOSSY himself, who is the now mainly concerned with producing experimental evidence in support of/theoretical basis of the Quantum Theory: his interest in cosmic rays as such seems dwindling.

/(e) The ATOMIC..... 25X1

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(c) The ATOLIC PHYSICS Department is directed by Professor K. SIMONYI,	
who, is particularly expert in low-energy accelerators (1-4 MeV of Cockroft-	
Walton and Van der Graaf types). The main task of this Department has been	
the development of experimental apparatus and equipment for use in this energy	
range of 1-4 MeV. Apparatus for detection and measurement in the field of	
neutron physics also is being developed by SIMONYI.	
	25 X 1
(d) The RADIOLOGY Department is at present	
working mainly on the industrial applications of radioactive tracer elements,	
and the development of relevant detectors. The radioactive tracers were	
obtained from U.S.S.R.	
(e) The Department of ELECTRONAGNETIC MAVES has been	25 X 1
concerned recently in measurements of nuclear magnetic mements; experiments.	
on quadrupole moment measurement were started late in 1956, using tin iodide.	
In this Department, a 4.5 MeV "Microtron" has been developed.	(1
Work on electron 25	(1.:
scattering is planned but not yet started.	
person mrs up breather par the less hourself	
The Department of ELECTROMAGNETIC MAVES was started in 1950 in order to	
The Department of ELECTROMAGNETIC MAVES was started in 1950 in order to establish theoretical bases for the development of radar systems.	
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Reactor, then in operation in U.S.S.R., was to be purchased by HUNGARY, taken down and re-erected at CSILLEBERC. In May 1955, the contract for its purchase was signed, and the purchase-price (which will be paid for in goods exported from HUNGARY to U.S.S.R.) is about ten times that obtaining on the world-market.

The Pile is a 2 megawatt watercooled type with enriched uranium fuel and with water and NOT graphite as moderator. It was intended to use this pile for neutron research and production of tracer elements; some researches on power production were hoped to be started later, with its help.

Early in 1956, a group of about 12 young physicists and engineers were sent from BUDAPEST to MOSCOV for three months! training. They studied there routine procedures on pile operation (maintenance, control, radioactive hazards and so forth). Another group was sent in September 1956 to study atomic energy physical and chemical research methods but returned at the end of October 1956, having achieved nothing and without an opportunity of even starting their work. This was due not to the Revolution, but to administrative failure. Some 300 persons in all were allocated to this Project. A: in January 1957, the work on the Reactor building is well-advanced, and some parts of the structural elements of the pile have arrived from U.S.S.R. About two-thirds of the essential pile and control-gear has arrived from U.S.S.R. but is not even unpacked.

The Revolution has altered the whole future of this project, which is temporarily or perhaps permanently at a standstill. One of the most serious obstacles to its further development, is that no one wished to be in charge of the project, not even Dr L. PAL, formerly head of the Department.

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٦. Gchoral.

This Institute is at Konkoly Thego Utca, BUDAPEST XII and occupies an area of about 1,700 hecteres. The nominal head of the Institute is KOVACS, Istvan, but his scientific abilities are not highly regarded by his staff who consider that he was The de facto head of the given his position for political reasons. Institute is Professor JANOSSY. In all the laboratories employed about 20-25 qualified chemists, 40 Physicists, 55-60 Engineers (mechanical and electrical) and 25 laboratory assistants. figures do not include those persons working on the nuclear reactor which was expected from the U.S.S.R., and who were isolated from the rest of the staff. From May to October, 1956 about 300 persons were employed in the reactor section and it was rumoured that when the reactor was eventually received this figure would rise to 500. PAL, Lenart, who had spont about a year in the U.S.S.R. studying Soviet Reactors, and who had possibly not returned to HUNGARY when the revolution broke out was understood

2. The Chemical Section.

The head of the Chemical Section was VORSATZ, Bruno, but the work of the Heavy Water Laboratory, although it employed only chomists, was controlled by SIMONYI, Karoly, the physicist who was also in charge of the fast particle physics section (see below, In this laboratory work had been going on for para. 3 (d)). about 6 months previous to the revolution on the production of D_20 by electrolysis. Some 60-70 litres of water were used as electrolyte and a current density of 2-3 amps/sq.cm. was employed. The electrodes About 600 volts from secondary cells was available. used were of pure iron. As a result of the 6 menths work rather less than one gram of water containing 70% D20 had been extracted. Those working in the laboratory were told that the heavy water was required as a moderator for the reactor that was to be received from the U.S.S.R. and were given to understand that it required water of 88-90% D.O.

to have been named as the head presumptive of the reactor section.

No published work, in any language, on the production of heavy water by electrolysis was available to the laboratory.

Other chemical work the Institute was on the production of 3.

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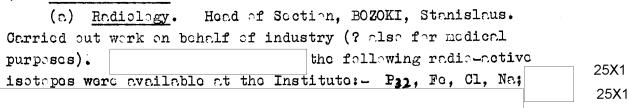
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pure boron trifluoride for G.M. counters, and of stannous chloride as a conducting coating for the interior surfaces of G.M. tubes. In 1953 or 1954 the Institute produced a number of G.M. counters (details unknown) for the Hungarian Army, as well as supplying protetype counters which were then put into production at the Iradegep Keszleteze Vallalat. Hearsay at the Institute put the total number produced at 1,000.

4. Other Sections.

of such equipment.



- (b) Spectroscopy. Work was being carried out on emission spectroscopy & absorption spectroscopy (mainly as an aid to chemical research at the Institute). Some work was also undertaken on the design of spectroscopes suitable for various industrial requirements.

 All spectroscopes in use were made in GERMANY. 25X1
- (c) Infra-Rod Research. Head of Research: LANG, Leszlo; head of the infra-rod apparatus design: BORONKAY, Attila. LANG, a chemist by training, was largely concerned with office work. Infra-rod work at the Institute was in its infancy, most of the effort being concerned with the construction of apparatus to allow research to be started. The Hungarian Optical Works of CSORSZ (?CSERKESZ) Utea, BUDAPEST XII, made long etc. for infra-rod work. The Gamma Optical Works were also trying to produce 30 sets of infra-rod apparatus (details unknown), but had encountered many difficulties.
- (d) <u>Fast Particle Physics</u>. Head: SIMONYI, Karoly, though
 Professor JANOSSY took considerable interest. This section had 25X1
 two Van der Graaf accelerators of 1 Mev. and 600,000 c.v.

 there were also one or two linear accelerators,
 and was certain that FARAGO, Poter, a physicist, had been sent from
 the Institute to the U.S.S.R. to study the operation and construction
- (c) Cosmic Ray Research.

 in view of his world-wide reputation in this subject, JANOSSY was in charge.
- (f) <u>Institute Workshops</u>. This employed about 400 men whose main concern was to construct apparatus for themesearch sections.

 the work 25X1

produced was of extremely poor MANAGET.

/5. Miscellaneous...25X1

5. Miscellaneous.	SFCRET	1	25X1
(a) Apart from the		any member of the	
Institute could go into a	any other section	of the establishment.	
There had been no mestric	ctive security p	recautions in operation	25 X 1
apart from the time in 19	953/4 when G.M.	counters were being	25X1
produced for the army (so	oo para. 3 abovo). In particular	20/(1
no C.W.	work was being t	undertaken by the chemical	
section.			25X1
(b) <u>Uranium Extrac</u>	tion from Coal.		
		coal ash from	
which it would be	economic to ex	tract the Uranium.	25X1
the conl	was mined in the	BAKONY Mountains	20, (
(c) Allied Institu	tos.	SZALAY, Alexando	r
was in charge of an Inst.	itute at DEBRECE	N which carried out work	
very similar to that of	the Central Phys	ical Research Institute.	
SZALAY was generally con	sidered to be an	ti-Communist.	

6. Expansion of the Institute. Considerable new building was under way, mainly for the reactor section. A new single-storey laboratory block had been designed by the Architectural Section of the Hungarian Academy of Sciences (Magyar Tudemanyos Akademia) of 9, Roosevelt Square, BUDAPEST, V. This block was 80m. leng by 20m. wide. It had a central corridor with 14 rooms on either side for use as laboratories. No further details are available.

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Scienti	V 1
Work Done at the Central Physical Research Institute, BUDAPEST 25	X1
25X1	
The schematic Lay-out for the above Institute	(1
was drawn by an engineer and scientist	5X1
originally employed by Messrs. TUNGSRAM working in the Valve Department	
(klystrons, etc.) and latterly in the Central Physical Research	
Institute, where he worked between the engineering group and general	
planning group under Head of the AtomicResearch Reactor	5X1
Division.	
2. The whole of the Central Research Institute, with the	
exception of the Spectro-chemical Research Laboratories, was housed	
together in a group of buildings covering an area of 40 Hungarian	
holds on the Janos Hill outside BUDAPAST. Personnel employed by the	
Institute totalled approximately 500 → 550 men and women.	
3. The Institute did not work under any direct instructions	
from MOSCOW, though individual Heads of Departments were in the habit	
of going to RUSSIA for consultation. Sometimes they went to acquire	
knowledge on new developments and sometimes to impart their own findings.	
25	5X1
4. The Spectro-chemical Laboratory, though coming directly under	
Professor JANOSSY was actually housed in the 25%	X 1
Technical University of BUDAPEST. There was never any very clear	
overall priority target to which the Institute as a whole adhered. Priority	
work as such varied by departments. In November, 1946, the subject to	
which most sections gave priority was concerned with the detection of	
Atomic Contamination and means for decontamination. Equal in priority	
was work being done in instruments for the detection of radio activity.	
There was always considerable friction between the Institute and the	
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military authorities, the latter often wishing the Institute to undertake work which Dr. JANOSSY was disinclined to do.

Members of the Cosmic Ray Laboratory under Dr. JANOSSY were often in BULGARIA and in contact with Bulgarian scientists; the reson being that the Hungarian Government had built a complete Cosmic Ray Laboratory and Research Station on the Stalin Hill in BULGARIA.

Members of Professor JANOSSY's team often in BULGARIA included Doctors NARAY and ZSOLT. These Last two mentioned were in BULGARIA early in 1956 and later visited RUMANIA.

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